

WHAT IS CLAIMED IS:

- 1           1.       A method for enabling access to resource objects in an application engine,  
2       comprising:  
3           receiving a request, from a calling entity, for resource objects of a specified type  
4       in the application engine;  
5           generating a request to the application engine for information on available  
6       resource objects of the specified type;  
7           in response to receiving the information from the application engine, generating a  
8       collection object including one metadata element for each resource object of the specified  
9       type in the application engine; and  
10       returning the generated collection object to the calling entity.
- 1           2.       The method of claim 1, wherein the calling entity comprises an application  
2       program.
- 1           3.       The method of claim 1, wherein the calling entity issues the request from a  
2       client and wherein the request is received on a server including the application engine.
- 1           4.       The method of claim 1, wherein the application engine is one of a plurality  
2       of service engines enabling access to service resources, wherein the request for the  
3       resource objects from the calling entity comprises a method that is a member of a service  
4       class implementation of the application engine, wherein each service engine provides one  
5       service class implementation of methods and objects from a same abstract service class.
- 1           5.       The method of claim 1, wherein the application engine and other service  
2       engines comprise workflow products from different vendors.

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1           6.     The method of claim 5 wherein the workflow service class  
2     implementations from different vendors each include methods and objects from a same  
3     abstract workflow service class specifying methods and objects to include in all workflow  
4     service class implementations.

1           7.     The method of claim 1, wherein the application engine comprises a  
2     workflow engine and wherein the specified type of the requested resource objects  
3     comprises one of workflow objects, workflow templates and work lists defined in the  
4     application engine.

1           8.     The method of claim 1, wherein the collection object is generated using  
2     methods from a collection object class, further comprising:  
3                 receiving a retrieve method in the collection object class from the calling entity  
4     requesting the resource object represented by one selected metadata element in the  
5     collection object;  
6                 generating an additional request to the application engine for the resource object  
7     requested in the retrieve method;  
8                 receiving the requested resource object from the application engine; and  
9                 returning the requested resource object to the calling entity invoking the retrieve  
10    method.

1           9.     The method of claim 8, wherein the calling entity uses methods from the  
2     collection object class to access the collection object.

1           10.    The method of claim 9, wherein the generated additional request to the  
2     application engine is in a service class implemented by the application engine including  
3     methods and objects to access the application engine.

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1           11.    The method of claim 8, wherein the application engine is one of a  
2    plurality of service engines enabling access to service resources, wherein each service  
3    engine provides one collection object class implementation of methods from a same  
4    abstract collection object class used to instantiate and manipulate a collection object  
5    including metadata on resource objects available at the application engine.

1           12.    The method of claim 1, wherein the collection object is generated using  
2    methods from a collection object class and wherein the request for the resource object  
3    from the calling entity is in a service class implemented by the application engine that  
4    includes methods and objects to access the application engine.

1           13.    A system for enabling access to resource objects, comprising:  
2            an application engine including resource objects;  
3            means for receiving a request, from a calling entity, for resource objects of a  
4    specified type in the application engine;  
5            means for generating a request to the application engine for information on  
6    available resource objects of the specified type;  
7            means for generating a collection object including one metadata element for each  
8    resource object of the specified type in the application engine in response to receiving the  
9    information from the application engine; and  
10          means for returning the generated collection object to the calling entity.

1           14.    The system of claim 13, wherein the calling entity comprises an  
2    application program.

1           15.    The system of claim 13, wherein the calling entity comprises a client and  
2    wherein the means for receiving the request comprises a server including the application  
3    engine.

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1           16.     The system of claim 13, wherein the application engine is one of a  
2     plurality of service engines enabling access to service resources, wherein the means for  
3     requesting the resource objects from the calling entity uses a method that is a member of a  
4     service class implementation of the application engine, wherein each service engine  
5     provides one service class implementation of methods and objects from a same abstract  
6     service class.

1           17.     The system of claim 16, wherein the application engine and other service  
2     engines comprise workflow products from different vendors.

1           18.     The system of claim 17, wherein the workflow service class  
2     implementations from different vendors each include methods and objects from a same  
3     abstract workflow service class specifying methods and objects to include in all workflow  
4     service class implementations.

1           19.     The system of claim 13, wherein the application engine comprises a  
2     workflow engine and wherein the specified type of the requested resource objects  
3     comprises one of workflow objects, workflow templates and work lists defined in the  
4     application engine.

1           20.     The system of claim 13, wherein the collection object is generated using  
2     methods from a collection object class, further comprising:  
3                 means for receiving a retrieve method in the collection object class from the  
4     calling entity requesting the resource object represented by one selected metadata element  
5     in the collection object;  
6                 means for generating an additional request to the application engine for the  
7     resource object requested in the retrieve method;  
8                 means for receiving the requested resource object from the application engine; and

FILED "40237560

9 means for returning the requested resource object to the calling entity invoking the  
10 retrieve method.

1 21. The system of claim 20, wherein the calling entity uses methods from the  
2 collection object class to access the collection object.

1 22. The system of claim 21, wherein the means for generating the additional  
2 request to the application engine comprises a method in a service class implemented by  
3 the application engine including methods and objects to access the application engine.

1 23. The system of claim 20, further comprising:  
2 a plurality of service engines enabling access to service resources, including the  
3 application engine, wherein each service engine provides one collection object class  
4 implementation of methods from a same abstract collection object class used to  
5 instantiate and manipulate a collection object including metadata on resource objects  
6 available at the application engine.

1 24. The system of claim 13, wherein the means for generating the collection  
2 object uses methods from a collection object class and wherein the means for requesting  
3 the resource object from the calling entity uses methods in a service class implemented by  
4 the application engine that includes methods and objects to access the application engine.

1 25. An article of manufacture including code for enabling access to resource  
2 objects in an application engine by:  
3 receiving a request, from a calling entity, for resource objects of a specified type  
4 in the application engine;  
5 generating a request to the application engine for information on available  
6 resource objects of the specified type;

FILED "07" OCT 1 2007

7 in response to receiving the information from the application engine, generating a  
8 collection object including one metadata element for each resource object of the specified  
9 type in the application engine; and  
10 returning the generated collection object to the calling entity.

1 26. The article of manufacture of claim 25, wherein the calling entity  
2 comprises an application program.

1 27. The article of manufacture of claim 25, wherein the calling entity issues  
2 the request from a client and wherein the request is received on a server including the  
3 application engine.

1 28. The article of manufacture of claim 25, wherein the application engine is  
2 one of a plurality of service engines enabling access to service resources, wherein the  
3 request for the resource objects from the calling entity comprises a method that is a  
4 member of a service class implementation of the application engine, wherein each service  
5 engine provides one service class implementation of methods and objects from a same  
6 abstract service class.

1 29. The article of manufacture of claim 25, wherein the application engine and  
2 other service engines comprise workflow products from different vendors.

1 30. The article of manufacture of claim 29, wherein the workflow service class  
2 implementations from different vendors each include methods and objects from a same  
3 abstract workflow service class specifying methods and objects to include in all workflow  
4 service class implementations.

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1           31.     The article of manufacture of claim 25, wherein the application engine  
2 comprises a workflow engine and wherein the specified type of the requested resource  
3 objects comprises one of workflow objects, workflow templates and work lists defined in  
4 the application engine.

1           32.     The article of manufacture of claim 25, wherein the collection object is  
2 generated using methods from a collection object class, further comprising:  
3           receiving a retrieve method in the collection object class from the calling entity  
4 requesting the resource object represented by one selected metadata element in the  
5 collection object;  
6           generating an additional request to the application engine for the resource object  
7 requested in the retrieve method;  
8           receiving the requested resource object from the application engine; and  
9           returning the requested resource object to the calling entity invoking the retrieve  
10 method.

1           33.     The article of manufacture of claim 32, wherein the calling entity uses  
2 methods from the collection object class to access the collection object.

1           34.     The article of manufacture of claim 33, wherein the generated additional  
2 request to the application engine is in a service class implemented by the application  
3 engine including methods and objects to access the application engine.

1           35.     The article of manufacture of claim 32, wherein the application engine is  
2 one of a plurality of service engines enabling access to service resources, wherein each  
3 service engine provides one collection object class implementation of methods from a  
4 same abstract collection object class used to instantiate and manipulate a collection object  
5 including metadata on resource objects available at the application engine.

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- 1           36.    The article of manufacture of claim 25, wherein the collection object is
- 2   generated using methods from a collection object class and wherein the request for the
- 3   resource object from the calling entity is in a service class implemented by the application
- 4   engine that includes methods and objects to access the application engine.

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